EXHIBIT A

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA
450 Fifth Street NW, Suite 8000
Washington, DC 20530

COMMONWEALTH OF MASSACHUSETTS
One Ashburton Place, 18th Floor
Boston, MA 02108

DISTRICT OF COLUMBIA
400 Sixth Street NW, Tenth Floor
Washington, DC 20001

STATE OF CALIFORNIA
300 South Spring Street, Suite 1702
Los Angeles, CA 90013

STATE OF MARYLAND
200 St. Paul Place, 19th Floor
Baltimore, MD 21202

STATE OF NEW JERSEY
124 Halsey Street – 5th Floor
Newark, New Jersey 07102

STATE OF NEW YORK
28 Liberty Street, 20th Floor
New York, NY 10005

and

STATE OF NORTH CAROLINA
P.O. Box 629
Raleigh, NC 27602
Plaintiffs,

v.

JETBLUE AIRWAYS CORPORATION
27-01 Queens Plaza North
Long Island City, NY 11101

and

SPIRIT AIRLINES, INC.
2800 Executive Way
Miramar, FL 33025

Defendants.

Civil Action No.: 1:23-cv-10511-WGY

Supplemental Report of Tasneem Chipty, Ph.D.

September 22, 2023

Highly Confidential
Subject to Protective Order

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List of Supplemental Exhibits

IV. Mr. Scheff's Popping Analysis Appears to Be Flawed

7. I also explained in my reply report that Mr. Scheff's popping analysis appeared to be flawed,[18] but that Defendants had not produced the necessary backup and software access for me to adequately evaluate his modeling exercise at the time that I submitted my reply report.[19] I now revisit Mr. Scheff's popping analysis, having had an opportunity to access the software he used.[20]

8. Staff working under my direction were able to reproduce Mr. Scheff's popping analysis on the combined fleet, using the APGFam model set at the same settings used by Mr. Scheff, which were primarily the software defaults. Having done so, it is evident that Mr. Scheff's analysis is a theoretical exercise that could be the first step in a series of steps to evaluate the economic question of whether the combined firm would use 12 fewer A320s and 3 fewer A321s, relative to the total number of planes used on a standalone basis, to serve the combined schedule. His analysis, however, is substantially incomplete because it does not incorporate real-world considerations, including the questions of whether any algorithmic schedule changes coming from the APGFam model would have been profitable or whether they would have been operationally feasible for the combined airline, especially in light of the proposed divestitures.

9. Furthermore, while Mr. Scheff appears to have been concerned about whether any popped planes were the result of existing slack in the networks, he did not use the same procedure to assess the potential for popping on the two standalone fleets.[21] In particular, he allowed for modest moves in departure times forward and backward in increments of 20 minutes up to 60 minutes total when analyzing the usage of the combined fleet,[22] but he did not do so

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[18] Chipty Reply Report, § V.B.

[19] Chipty Reply Report, Footnote 194.

[20] Mr. Scheff does not appear to have updated his popping analysis between his first and second amended reports. For consistency, in this section, I provide citation references to the Scheff Report, not the Scheff Second Amended Report.

[21] Scheff Report, ¶ 42 ("The first step I took was to analyze whether JetBlue and Spirit could fly their July 2023 schedules with fewer planes on a standalone basis, because I wanted to ensure that any 'popped' planes were the result of pooling rather than existing slack in the networks.").

[22] Scheff Report, ¶ 48.

when analyzing the usage of the standalone fleets.[23] Mr. Scheff's finding of 15 popped planes, therefore, is based on his comparison of the combined airline's fleet schedule constructed using the APGFam model to the actual schedules reflecting the standalone airlines' full planning processes. Notably, the combined and the standalone schedules that Mr. Scheff compares were constructed using different approaches. One cannot distinguish whether the differences between them are the result of the merger, or are instead the result of the different methodologies used to construct the two types of schedules. As a general principle of research design, when measuring the effect of a treatment (here the merger), one generally uses the *same* instrument to measure outcomes in the treatment and the control group. Only then, when all else can reasonably be considered to be equal, can one attribute any difference between the treatment and control group to the treatment itself.[24] Mr. Scheff has not, in my opinion, applied this well-established scientific principle.

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[23] Instead, as a sensitivity for the standalone fleets, Mr. Scheff "instructed the model that it could reduce turn time [the required ground time for an aircraft between an arrival and a subsequent departure]… from what appeared to be a minimum of 45 minutes for the A320 and A321 aircraft in the actual schedules to as low as 35 minutes," while still requiring each airline to fit its existing schedule of departures. (Scheff Report, ¶ 42.) As I explain below, even this alternative treatment, which is not part of Mr. Scheff's primary analysis, is not a substitute for retiming. See *infra* Footnote 27.

[24] Central to the identification of treatment effects is what economists often refer to as the "ceteris paribus" principle—meaning holding all else equal. See, for example, N. Gregory Mankiw, *Principles of Microeconomics*, 2nd Edition, Mason, OH: South-Western / Thomson Learning, 2001, p. 70 ("Economists use the term *ceteris paribus* to signify that all the relevant variables, except those being studied at that moment, are held constant. The Latin phrase literally means 'other things being equal.'… it is important to keep in mind what is being held constant and what is not."); A. Colin Cameron and Pravin K. Trivedi, *Microeconometrics: Methods and Applications*, Cambridge, UK: Cambridge University Press, 2005, p. 861 ("The standard problem in treatment evaluation involves the inference of a causal connection between the treatment and the outcome. …the impact of a hypothetical change in D on y, holding x constant, is of interest. …We ask how the outcome of an average untreated individual would change if such a person were to receive the treatment. That is, a magnitude like $\Delta y / \Delta D$ is of interest. Fundamentally one's interest lies in the outcomes that result from, or are caused by, such interventions. Here causation is in the sense of *ceteris paribus*, meaning that we hold all other variables constant."); Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton, NJ: Princeton University Press, 2009, pp. 5, 221 ("The mechanics of an ideal experiment highlight the forces you'd like to manipulate and the factors you'd like to hold constant. …The key to causal inference… is control for observed confounding factors."); Dawn Iacobucci and Gilbert A. Churchill, Jr., "Causal Designs" in *Marketing Research: Methodological Foundations*, 10th Edition, Mason, OH: South-Western / Cengage Learning, 2010, pp. 68-69 ("Internal validity is the ability to attribute the effect that was observed to the experimental variable, and not to other factors. …We were better able to eliminate the effect of other factors that may obscure or confound the relationships, either by physically holding the factors constant or by controlling for them statistically. Thus, we may conclude that the observed effect (demand) was due to the manipulation of the experimental variable (price). …We need to design experiments carefully, because we want to be able to conclude that the observed response was due to our experimental manipulations. In particular, we need to rule out extraneous factors as possible causes."); Mark A. Allen, Robert E. Hall, and Victoria A. Lazear, "Reference Guide on Estimation of Economic Damages" in *Reference*

10. To illustrate the importance of this issue, staff under my direction re-ran the APGFam model to evaluate a series of thought experiments on the standalone schedules for non-Mint A320s, using the same approach (including allowing for retiming) that Mr. Scheff used on the combined fleet. In July 2023, JetBlue scheduled 3,364 flights using 113 non-Mint A320s, and Spirit scheduled 4,094 flights using 129 A320s.[25] The model was used to evaluate whether each of the standalone airlines could offer the same flights, allowing for modest moves forward and backward in increments of 20 minutes up to 60 minutes total, to pop one plane, to pop two planes, and so on, out to six planes.[26] The results of this analysis are shown in the top two panels, labeled "JetBlue" and "Spirit," in Supplemental Exhibit 3. In each of these instances, the model found that the standalone airline's schedule could be reoptimized to pop that number of planes, with modest retiming.[27] For comparison, the third panel displays the retiming statistics from popping 12 planes in the A320 family for the combined fleet, as Mr. Scheff finds. This exercise suggests that at least some of the difference Mr. Scheff finds between the optimized combined fleet based on the output of the APGFam model and the actual standalone schedules of JetBlue and Spirit could have been the result of differences in methodology, and not a result of the merger.[28]

Manual on Scientific Evidence, 3rd Edition, Washington, DC: The National Academies Press, 2011, p. 432 ("Because the but-for scenario differs from what actually happened only with respect to the harmful act, damages measured in this way isolate the loss of value caused by the harmful act and exclude any change in the plaintiff's value arising from other sources. Thus, a proper construction of the but-for scenario and measurement of the hypothetical but-for plaintiff's value by definition includes in damages only the loss *caused* by the harmful act."); and Merger Guidelines, § 10 ("The Agencies credit only those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects.").

[25] Scheff Report Backup, "B6_Jul23_A_UncWf.xlsx," "NK_Jul23_A_UncWf.xlsx."

[26] In his analysis, Mr. Scheff used the APGFam model to evaluate whether the combined airline could pop twelve non-Mint A320 planes. Scheff Report, ¶ 49.

[27] By contrast, APGFam is not able to fly the existing schedules with fewer aircraft even after allowing for a reduction in turn times. (See Scheff Report, ¶ 42; Scheff Report Backup, "B6_NK_FamOutput_Logs.xlsx.") This difference in results between allowing for retiming (without adjusting turn times) and allowing for a reduction in turn times (without retiming) demonstrates that the two are not substitutes for each other; if they were, the two methods would produce equivalent results. Furthermore, Mr. Scheff did not allow for a reduction in turn times in his analysis of the combined fleet. This asymmetry in modeling is another example of how Mr. Scheff has failed to hold assumptions fixed across the combined and standalone fleets when attempting to draw inferences about the merger.

[28] Mr. Scheff performed a similar analysis to study non-Mint A321 planes, allowing re-timing for the combined fleet, but not for the standalone fleets, and he finds that three non-Mint A321 planes could be popped from the combined fleet. (Scheff Report, ¶¶ 51-52.) This analysis, like his analysis of the A320 planes, cannot discern whether the popping is the result of the merger or methodological differences between the merger and the standalone scenarios.

11. To the extent Mr. Scheff is arguing that it is unreasonable to rely on the output of the APGFam model for the standalone fleets because one can observe that the airlines ultimately preferred not to pop those planes, he has not applied the same standard to the combined fleet. Mr. Scheff does not indicate that he has any basis to know, nor has he attempted to evaluate, whether the combined airline would have chosen to pop the 12 non-Mint A320 planes or three non-Mint A321 planes after engaging in an iterative process to assess the reasonableness of the APGFam solution or whether they would have refined or abandoned that recommendation. Thus, Mr. Scheff's claimed increases in seat departures from popping are both speculative and unverifiable.

Supplemental Exhibit 3
Overview of Popping Planes, with Retiming, for the Standalone Airlines

Airline	Number of Airplanes Popped	Number of Flights Shifted by			Percent of Flights Shifted by		
		+/- 20 Min	+/- 40 Min	+/- 60 Min	+/- 20 Min	+/- 40 Min	+/- 60 Min
JetBlue	0	0	0	0	0%	0%	0%
JetBlue	1	52	0	0	2%	0%	0%
JetBlue	2	114	0	0	3%	0%	0%
JetBlue	3	256	13	2	8%	0%	0%
JetBlue	4	390	25	7	12%	1%	0%
JetBlue	5	559	44	5	17%	1%	0%
JetBlue	6	689	115	25	20%	3%	1%
Spirit	0	0	0	0	0%	0%	0%
Spirit	1	6	0	0	0%	0%	0%
Spirit	2	63	3	0	2%	0%	0%
Spirit	3	143	5	0	3%	0%	0%
Spirit	4	231	18	0	6%	0%	0%
Spirit	5	370	41	4	9%	1%	0%
Spirit	6	449	73	24	11%	2%	1%
Scheff's combined fleet A320 popping run	**12**	**965**	**73**	**1**	**13%**	**1%**	**0%**

Notes:

1. This table shows the number and percentage of flights that were shifted by 20 minutes, 40 minutes, or 60 minutes, in various popping runs conducted on the standalone JetBlue non-Mint A320 and Spirit A320 fleets and schedules, otherwise using the same parameters used by Scheff in his combined non-Mint A320 popping run.
2. "Percent of Flights Shifted by" is calculated as the number of shifted non-Mint A320 flights divided by the total number of non-Mint A320 flights, in the JetBlue standalone fleet, Spirit standalone fleet, or combined fleet, respectively.

Sources: Scheff Report Backup, "B6_Jul23_A_UncWf.xlsx," "NK_Jul23_A_UncWf.xlsx," "B6NK_Jul23_A_UncWf.xlsx," and "B6_NK_FamOutput_Logs.xlsx;" and APGFam.

Staff working under my direction re-ran Mr. Scheff's analysis and found that at least two non-Mint A321 aircraft could be popped from the JetBlue standalone fleet, indicating that at least some of Mr. Scheff's claimed benefit is not merger-specific. See workpapers.